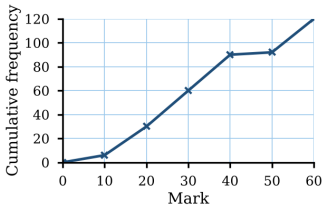
Day 111 **IGCSE 10-a-day**

1 A flight leaves London at 10:55 (London time).
It takes 9 hours 30 minutes.
When it is 12:00 in London it is 20:00 in Tokyo.
At what time, in Tokyo time, does the flight land? Say if it is on a different day.

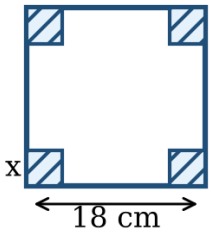
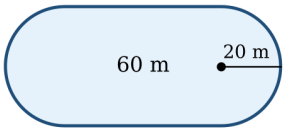
2 The cumulative frequency graph gives information about the marks of 120 students in a test.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 120 had a mark greater than 55.



3 Solve $\frac{x+1}{2} + \frac{x-6}{8} = -4$

4 A sector of a circle has radius 13 cm and angle 45°.
(a) Work out the length of the arc of the sector.
(b) Work out the area of the sector. Give each answer in terms of π.

5 Solve $\cos 3x = 0.8$ for $0 \leq x \leq 120$.
Give your answers correct to 1 decimal place where necessary. (Calculator)

Day 111	IGCSE 10-a-day
6 The curve $y = 2x^2 - 5x + 5$ and the line $y = -3x + 5$ intersect at two points A and B, where A has the smaller x coordinate. (a) Find the coordinates of A and B. (b) Find the gradient of the curve at A and at B.	
7 $f(x) = 5x - 4$ and $g(x) = kx - 3$, where k is a constant. $fg(x) = gf(x)$ for all values of x. Find the value of k.	
8 Squares of side x cm are cut from the corners of a 18 cm square cardboard sheet, which is folded into an open box of volume V cm^3. (a) Show that $V = 4x^3 - 72x^2 + 324x$. (b) Find x for the maximum volume, and this volume. 	
9 The diagram shows a running track made from a rectangle and two semicircles. (Calculator) An athlete runs 5 complete laps around the track. Work out the total distance run, to the nearest 10 metres. The diagram is not drawn accurately. 	
10 The normal to the curve $y = -x^2 + x - 4$ at the point P where $x = 0$ meets the curve again at Q. Find the coordinates of Q.	